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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/765,421

01/27/2004

Shmuel Shaffer

2705-0331

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7590

09/10/2008

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EXAMINER

PHAN, MAN U

ART UNIT

PAPER NUMBER

2619

MAIL DATE

DELIVERY MODE

09/10/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/765,421	Applicant(s) SHAFFER ET AL.	
	Examiner Man Phan	Art Unit 2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-13, 15 and 20-31 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-13 and 26-30 is/are allowed.
- 6) ☒ Claim(s) 1-8, 15 and 20-25, 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment and Argument

1. This communication is in response to applicant's 04/17/2007 Amendment in the application of Shaffer et al. for a "Time-sensitive-packet jitter and latency minimization on a shared data link" filed 01/27/2004. This application is a continuation of 09/614,536 filed 07/11/2000 is now U.S. Patent #6,707,821. The amendment and response has been entered and made of record. Claims 4-5, 9, 20, 23-24, 26 have been amended. Claims 1-13, 15, 20-31 are pending in the application.

2. Applicant's remarks and argument to the rejected claims are insufficient to distinguish the claimed invention from the cited prior arts or overcome the rejection of said claims under 35 U.S.C. 103 as discussed below. Applicant's argument with respect to the pending claims have been fully considered, but they are not persuasive for at least the following reasons.

3. In response to Applicant's argument that the reference does not teach or reasonably suggest the functionality upon which the Examiner relies for the rejection. The Examiner first emphasizes for the record that the claims employ a broader in scope than the Applicant's disclosure in all aspects. In addition, the Applicant has not argued any narrower interpretation of the claim limitations, nor amended the claims significantly enough to construe a narrower meaning to the limitations. Since the claims breadth allows multiple interpretations and meanings, which are broader than Applicant's disclosure, the Examiner is required to interpret the claim limitations in terms of their broadest reasonable interpretations while determining

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patentability of the disclosed invention. See MPEP 2111. In other words, the claims must be given their broadest reasonable interpretation consistent with the specification and the interpretation that those skilled in the art would reach. See *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000), *In re Cortright*, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999), and *In re American Academy of Science Tech Center*, 2004 WL 1067528 (Fed. Cir. May 13, 2004). Any term that is not clearly defined in the specification must be given its plain meaning as understood by one of ordinary skill in the art. See MPEP 2111.01. See also *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989), *Sunrace Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298, 1302, 67 USPQ2d 1438, 1441 (Fed. Cir. 2003), *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1298 67 USPQ2d 1132, 1136 (Fed. Cir. 2003). The interpretation of the claims by their broadest reasonable interpretation reduces the possibility that, once the claims are issued, the claims are interpreted more broadly than justified. See *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969). Also, limitations appearing in the specification but not recited in the claim are not read into the claim. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Therefore, the failure to significantly narrow definition or scope of the claims and supply arguments commensurate in scope with the claims implies the Applicant intends broad interpretation be given to the claims. The Examiner has interpreted the claims in parallel to the Applicant in the response and reiterates the need for the Applicant to distinctly define the claimed invention.

4. Applicant's argument with respect to the rejected claims 1 and 20 (remarks, page 9, third paragraph and page 10, second paragraph) that the cited reference fail to teach or suggest

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“estimating the transmit time required for transmission the packet”. However, Baker (US#6,580,694) is applied herein merely for the teaching of a novel techniques for establishing optimal audio latency in packet network communications. Baker discloses in Fig. 4 the flow chart, in which the interpacket time delay is calculated by taking the difference between the current packet's arrival time and the arrival time of a previous packet in step 418. The variable `arr_time_prev` is then set equal to the arrival time of the current packet in step 422. Operation then continues with step 426 in which a histogram that contains interpacket delay statistics is updated with a new sample being the interpacket time delay that was calculated in step 418 (*estimating the transmit time required for transmission of the packet*). Furthermore, Kim (US#6,215,791) teaches a queue management system capable of controlling jitter as well as cell priority. Kim teaches the limitation of the prioritizing the timing. Kim also states reasons for implementing a proper queue management system mainly to ensure that a quality of service is maintained (column 1 lines 24 through 32). A sequencer compares the deadline time of a new entry with that of the entries the sequencer has been keeping in the register. The entry with a smaller deadline time has higher priority (Col. 6, lines 8 plus).

Since no substantial amendments have been made and the Applicant's arguments are not persuasive, the claims are drawn to the same invention and the text of the prior art rejection can be found in the previous Office Action. Therefore, the Examiner maintains that the references cited and applied in the last office actions for the rejection of the claims are maintained in this office action.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-8, 15 and 20-25, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (US#6,580,694) in view of Kim (US#6,215,791).

With respect to claims 20-25, 31 the references disclose a novel system and method for interleaving time-critical packets with lower-priority packets onto a common data link without interfering with a time critical packets, according to the essential features of the claims. Baker (US#6,580,694) discloses a method and a set of logic for managing time-sensitive packetized data streams at a receiver (101), comprising: receiving a time-sensitive packet of a data stream (e.g. voice)(col. 3, lines 3-6); comparing an energy level of a payload signal of the packet to an

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energy level of a payload signal of a previous packet (col. 6, lines 21-28). Baker further teaches in Fig. 4 a flow diagram illustrated the techniques of establishing optimal audio latency in streaming communications, in which operation begins in step 410 with the recording of the arrival time of a current packet in the receive process 101. Step 410 is then followed by a decision block 414 in which the marker bit of the current packet is checked. If the marker bit is not set, then an interpacket time delay is calculated by taking the difference between the current packet's arrival time and the arrival time of a previous packet in step 418. The variable `arr_time_prev` is then set equal to the arrival time of the current packet in step 422. Operation then continues with step 426 in which a histogram that contains interpacket delay statistics is updated with a new sample being the interpacket time delay that was calculated in step 418. Operation then continues with step 430 in which the histogram is checked to see if there are enough delay samples. The above-described series of operations 410-430 can be repeated as often as packets are received in order to build up a histogram with enough delay samples. The number of required delay samples in the histogram can be determined by one of ordinary skill in the art, based on, for instance, a trial and error procedure, as a function of the quality of the audio playback and the type of transmission link between the transmit and receive processes. Upon reaching the required number of samples in the histogram, operation continues with step 434 in which a new size of the packet queue is determined. Thereafter, the new size can be applied to the packet queue, so that no packets are played back from queue until the queue has been filled to its new capacity. If the marker bit in a received packet has been set, then operations 418-426 are bypassed with operation 438 in which the variable `arr_time_prev` is set equal to the arrival time of the current packet, without updating the histogram with a new sample. In this way, the

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current elapsed time between arrival of the current packet and the previous packet is not included as part of the interpacket delay statistics 142. That is because, as indicated by the marker bit being sent, the packet was generated following a period of silence, so that the delay in the arrival of the current packet can be assumed to be primarily due to the period of silence, rather than a delay due to the packet's travel through the network. By including the elapsed time between packets as part of delay statistics 142 only if it is determined that the elapsed time is due to the network delay, rather than a transmit delay that may have been caused by a period of silence, the interpacket delay statistics that will be used to adjust the latency will better reflect the true network delay that is being addressed by the latency. An alternative technique would be to compare the energy of the payload in the current packet received by the destination machine with the payload energies of one or more previously received packets. Such a technique may be an alternative that can be automatically performed by the receive process in the destination machine if the marker bits of one or more packets are either not sent or are being used incorrectly by the transmit process (Col. 5, lines 29 plus).

In the same field of endeavor, Kim (US#6,215,791) discloses a queue management system capable of controlling jitter as well as cell priority. Kim teaches the limitation of the prioritizing the timing. Kim also states reasons for implementing a proper queue management system mainly to ensure that a quality of service is maintained (column 1 lines 24 through 32). A sequencer compares the deadline time of a new entry with that of the entries the sequencer has been keeping in the register. The entry with a smaller deadline time has higher priority. In the case that the deadline entry is the same, the eligible time is compared and the entry with a

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smaller eligible time has higher priority (column 6 lines 15 through 45). The results are subsequently stored in a register (column 6 lines 8 through 14).

The measuring and comparison steps provided by Baker in combination with the prioritizing operation disclosed by Kim would render the claim subject matter obvious to one skilled in the art. The proper motivation is to enhance the quality of service for real time transmission such as voice and end-to-end data flow; which is the objective of the invention disclosed by Kim.

Regarding claims 1-8, 15, they are method claims corresponding to the apparatus claims 20-25, 31 above. Therefore, claims 1-8, 15 are analyzed and rejected as previously discussed with respect to the claims 20-25, 31 above.

Double Patenting

8. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain : patent therefor ..." (Emphasis added). Thus, the term "same invention" in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed.

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Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 196%).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37CFR 3.7309.

10. Claims 1-8, 15 and 20-25, 31 of the present application Serial No. 10/765,421 (*hereinafter Application '421*) rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-31 of U.S. Patent No. 6,707,821 (*hereinafter '821*) since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The claims are identical and they are not patentably distinct from each other because the subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent, since the patent and the application are claiming common subject matter. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims are equivalent in scope and embodiment. The language of the two claims is substantially identical and is equivalent in functioning. All of the structural elements of the patent claims are present in the pending claims, defined with either identical or equivalent

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language. Additionally, the functional language, scope and embodiment reflect identical operation, purpose, application, and environment.

With respect to the specific limitations, claims 1-31 of patent '821 are equivalent to the pending claims 1-8, 15, 20-25, 31 of Application '421 for interleaving the transmission of time-critical packets with the transmission of lower-priority packets across a common data link.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. It has been held that the omission of an element and its function is an obvious expedient if the remaining elements perform the same function as before. In re Karlson, 136 USPQ 184 (CCPA). Also note Ex parte Rainu, 168 USPQ 375 (Bd. App. 1969); omission of a reference element whose function is not needed would be obvious to one skilled in the art.

Allowable Subject Matter

11. Claims 9-13 and 26-30 are allowable

12. The following is an examiner's statement of reasons for the indication of allowable subject matter: The closest prior art of record fails to disclose or suggest wherein predicting whether the lower-priority packet can be selected for transmission without causing substantial delay comprises computing the time remaining until the expected arrival of the next time-critical packet and comparing the time remaining with the estimated transmit time for the lower-priority packet; wherein transmission does not cause substantial delay if the estimated transmit time for the lower-priority packet does not exceed the time remaining until the expected arrival of the next time-critical packet by more than an allowable jitter; wherein computing the time remaining

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until the expected arrival of the next time-critical packet comprises computing a time estimate $t_R = t_{Np} + k \sim Np + jA - tC$, where t_{Np} is an expected arrival time estimate for the next time-critical packet, $\sim Np$ is an arrival time standard deviation for the next time-critical packet, $k \sim$ is a standard deviation multiplier, jA is an allowable jitter, and tC is the current time, as expressly recited in the claims.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Beyda et al. (US#5,935,218) is cited to show the method and apparatus for bus network prioritization using the broadcast of delay time to lower priority users from high priority users in a token or loop network.

The Beyda et al. (US#6,172,984) is cited to show the system and method for reducing the latency for time sensitive data over CSMA/CD networks.

The Hahn et al. (US#7,161,905) is cited to show the method and system for managing time sensitive packetized data stream at a receiver.

The Shaffer et al. (US#6,977,905) is cited to show the network with self regulating QoS.

The Bremer (US#6,320,879) is cited to show the communication system and method for interleaving or transmission of telephone rings and data.

The Hedayat et al. (US#2002/0039371) is cited to show the IP packet identification method and system for TCP connection and UDP stream.

The Simard et al. (US#6,940,826) is cited to show the apparatus and method for packet based media communications.

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14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION THIS ACTION IS MADE FINAL**. See MPEP ' 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Phan whose telephone number is (571) 272-3149. The examiner can normally be reached on Mon - Fri from 6:00 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel, can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

16. Information regarding the status of an application may be obtained from the Patent

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Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at toll free 1-866-217-9197.

Mphan

Sept. 08, 2008

/Man Phan/

Primary Examiner, Art Unit 2619